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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Ala Sharaiha

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EXAMINER

DINH, TRINH VO

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

09/09/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,516	<b>Applicant(s)</b> SHARAIHA ET AL.	
	<b>Examiner</b> Trinh Vo Dinh	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 10-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This is a response to amendment filed 06/09/2008. Claims 5-9 are canceled, and claims 1-4 and 10-19 are pending. The rejections of claims 10-11 under 35 USC & 112 second paragraph have been withdrawn in view of the amendment. However, the amended claim 1 necessitates a new ground of rejection as discussed below.

#### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “axis”, and “a direction perpendicular to the axis” in claim 1 must be shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 and 10-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 6-8 recites “said parasitic wires are narrower than or equal in width to said radiating wires which render the claim indefinite because it is unclear if the Applicant means

- a. a width of each of said parasitic wires is narrow than or equal to a width of an associated radiating wire, or
- b. a total of widths of said parasitic wires is narrow than or equal to a total of widths of said radiating wires.

For an examination's purpose, the recitation is best understood as “a width of each of said parasitic wires is narrow than or equal to a width of an associated radiating wire”.

In claim 1 lines 8-10, a claimed recitation “each of said parasitic wires is farther in a direction perpendicular to the axis of said wires from said associated radiating wire than from at least one of said other radiating wires” is unclear for the following reasons:

- a. It is unclear what “the wires” in line 9 refers to. Does it refer to “said parasitic wires”, “said radiating wires”?

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b. There is no support, in the instant specification or drawings, for elements "the axis" and "a direction perpendicular to the axis" so that the examiner can determine a location of the axis and the direction in order to understand the above claimed recitation. The Applicant is suggested providing a support for the "axis" and the "direction" in the drawings and/or the specification.

c. "said associated radiating wire" has no antecedent basis.

For an examination purpose, the recitation is best understood as "each of said parasitic wires is farther in a direction perpendicular to an axis of said parasitic wires from said associated radiating wire than from at least one of said other radiating wires".

Claims 2-4 and 10-19 are rejected because they depend on the rejected based claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

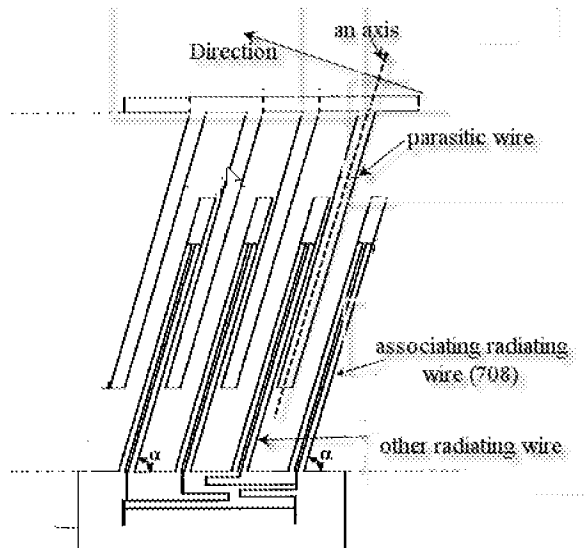
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 11-12, 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fillipovic (US 5,990,847 of record) hereafter Fillipovic 847.

Respecting claim 1, Fillipovic 847 discloses a helical antenna including at least one helix (Fig. 8B) consisting of at least two radiating wires (708 in Figs. 8b or 12), each of them being connected by coupling to an associated parasitic wire (710) by one first

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end (col. 6 lines 30-45, col. 7 line 65 to col. 8 lines 12), said radiating wires (708) and parasitic wires (710) being parallel and having a same length (Figs 11, 12) wherein a width of each of said parasitic wires is narrow than or equal to a width of an associated radiating wire (Figs. 11-12 shows width of each parasitic wires 710 is equal to width of an associated radiating wire 708). Further, Fillipovic 847 discloses each of said parasitic wires (710) is farther in a direction perpendicular to an axis of said parasitic wires from said associated radiating wire than from at least one of said other radiating wires (see the below drawing).



Respecting claims 3 and 11-12, Fillipovic 847 discloses said radiating wires (708) and said at least one parasitic wires (710) are printed on a substrate (col. 11, lines 40+), one of the ends of each of said parasitic wires (710) is connected by coupling to one of the ends of said radiating wire with which said parasitic wire is associated (Figs. 7, 11, 12; col. 6 lines 30-45, col. 7 line 65 to col. 8 lines 12), and said radiating wires are printed on a first surface of a substrate and in that said parasitic wires are printed on a second surface of said substrate (col. 11, lines 40+).

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Respecting claims 14-16, Fillipovic 847 discloses that the end of said radiating wires not connected to a parasitic wire is connected to a feedline (1224 in Fig. 12) of a power supply circuit, at least one of said helices is a quadrifilar helix, including four wires (Fig. 1C, 5, 12), said radiating wires forming a helix are all the same size and in that said parasitic wires are all the same size (Fig. 12).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-4, 10-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fillipovic (US 6,278,414 of record) hereafter Fillipovic 414 in view of Fillipovic 847.

Respecting claim 1, Fillipovic 414 discloses a helical antenna including at least one helix (column 1, line 15) consisting of at least two radiating wires (712 in Figs. 7-8, 1124 in Fig. 11A), each of them being connected by coupling to an associated parasitic wire (714 in Fig. 7, 1122 in Figure 11A; column 9, lines 6-18) by one first end, said radiating wires (712 in Fig. 7B) and parasitic wires (714) being parallel and having a same length (Figs. 7B, 8B) wherein a width of each of said parasitic wires is narrow than or equal to a width of an associated radiating wire (Figs. 7-8 shows width of each parasitic wires 714 is equal to width of an associated radiating wire 712, or Fig. 11A shows width of each parasitic wires 1122 is narrower than width of an associated radiating wire 1124). However, Fillipovic 414 does not suggest each of said parasitic

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wires is farther in a direction perpendicular to an axis of said parasitic wire from said associated radiating wire than from at least one of said other radiating wires. Fillipovic 847 disclosed the claimed invention as discuss in paragraph 4 above. It would have been obvious to one having ordinary skill in the art to arrange the parasitic and radiating wires as the manner as taught by Fillipovic 847 in order to operate the radiating wires in desired frequencies (Fillipovic 847: col. 7 lines 35-42).

Respecting claims 3-4, Fillipovic 414 discloses that said radiating wires and said 3 wires are printed on a substrate (406, Figs. 4-6, col. 4 lines 54-63), and each of said parasitic wires is connected to the ground (911 in Fig. 11B, col. 9 lines 19-30).

Respecting claims 10-12, Fillipovic 414 discloses that one of the ends of each of said radiating wires is connected by a conductive connection (716) to one of the ends of said radiating wire (712) with which said parasitic wire (714) is associated (Fig. 8, col. 8 lines 55-58), one of the ends of each of said parasitic wires is connected by coupling to one of the ends of said radiating wire with which said parasitic wire is associated (Figs. 7A, 8 or 11), and said radiating wires are printed on a first surface of a substrate and in that said parasitic wires are printed on a second surface of said substrate (col. 8 lines 42-52, col. 9 lines 19-24).

Respecting claims 13-17 and 19, Fillipovic discloses that at least one parasitic wire and one radiating wire adjacent to said radiating wire with which said parasitic wire is associated cross over one another (Fig. 11B), the end of said radiating wires not connected to a parasitic wire is connected to a feedline (730) of a power supply circuit, at least one of said helices is a quadrifilar helix, including four wires (Figs. 6-8, 11), said radiating wires forming a helix are all the same size and in that said parasitic wires are all



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the same size (Fig. 8b), at least one of said radiating and/or parasitic wires is formed by at least two segments, in which the angles of wrap of at least two of said segments are different and determined randomly or pseudo-randomly using global optimisation means (col. 6 lines 36-42), and said radiating wires have a length substantially different from a multiple of the wavelength corresponding to the mean frequency of the transmission band of said antenna, divided by 4 (col. 2 lines 15-20).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fillipovic 414 as modified by Fillipovic 847.

Fillipovic 414 further discloses, in column 9, lines 23-29, that the width of the parasitic wire is smaller than that of the radiating wire in order to broaden the band width of the antenna. However, Fillipovic 414 does not suggest ratio between the width of each of said parasitic wires and the width of said associated radiating wire is less than or equal to 0.15. It would have been obvious to one having ordinary skill in the art to select widths of antenna elements since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fillipovic 847 in view of Louvigne ("Broadband tapered printed quadrifilar helical antenna" of record).

Fillipovic 847 discloses every features of the claimed invention except the use of wires of variable width. Louvigne discloses, in Fig. 1, at least one of said radiating and/or parasitic wires has a variable width, varying regularly and consistently between a maximum and a minimum width. It would have been obvious to one having ordinary skill

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in the art at the time the invention was made to have Fillipovic's radiating elements with variable width as taught by Louvigne. Doing so would improve the bandwidth of the helical antenna.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Inquiry***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trinh Vo Dinh whose telephone number is (571) 272-1821. The examiner can normally be reached on Monday to Friday from 9:30AM to 6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens, can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Art unit 2821*

*September 05, 2008*

*/Trinh Vo Dinh/*

*Primary Examiner, Art Unit 2821*